

RESINEX *news*

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Floating on all Seas *since 1961*



During sixty-five years of activity, Resinex products are at work in ports, terminals, channels, open waters, ultra-deep waters across the Six Continents and the Seven Seas.

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Thai Bangchak Refinery Selects New Resinex Mooring Buoys

Siracha Oil Refinery (Laem Chabang) former ExxonMobil refinery, now operated by ThaiOil, has recently launched an important project to **modernize** its mooring system in its own port refinery. The project involves the installation of a new set of mooring buoys, intended to replace the existing ones, which have become obsolete.

Resinex has supplied **six large tilting-type mooring buoys**, plus **one spare buoy**, manufactured according to the **PEM 58** standard, with a height of **3,2 meters**, a buoyancy of **61 tons**, and a **diameter of 5,8 mt**.

The buoys are equipped with three mooring hooks, each with a capacity of **125 tons**, for a total Safe Working Load (SWL) capacity of 275 tons. The **6 + 1 buoys**

have been all designed to ensure maximum safety and reliability during tanker mooring operations.

The supply of the **mooring chains and anchors** has been assigned to **MoorEast (Singapore)**, a leading company in the sector, which will also handle all the phases of the **on-site installation**, ensuring the correct positioning and anchoring of the new buoys.



Anchoring Aquaculture

Super Heavy Duty Buoys on the Atlantic Coast of Canada



Aquaculture is one of the fastest-growing sectors in global food production, providing a sustainable response to the increasing demand for seafood. As offshore and coastal farming operations expand worldwide, the need for reliable, purpose-built marine infrastructure becomes ever more critical.

In 2024, **Resinex** began a collaboration with **Entreprises Shippagan** to support a salmon aquaculture project on the Atlantic coast of Canada, with delivery completed in 2025. The project called for durable marine equipment capable of meeting the specific demands of an aquaculture environment, where performance and longevity are essential.

Resinex supplied 42 PEM 18x2100 mooring buoys, each consisting of two truncated cones with a diameter of 1,800 mm and a net buoyancy of 4,200 kg, filled with polyurethane foam. This configuration allows vessels to operate safely and stably near the aquaculture farms.

Compared to spherical buoys, the truncated-cone geometry offers significant advantages: it enables the construction of larger floats through modularity, provides better hydrodynamic performance

and ensures greater stability during mooring operations.

As aquaculture continues to grow, the role of dependable marine infrastructure becomes increasingly central to the success of coastal and offshore farming operations. This project stands as a further example of **Resinex's** ability to provide effective, long-lasting solutions in technically demanding environments.





Ammonia: Mooring the Future

Catamaran Buoys for Duqm Oman

When BlueWater Energy Systems was awarded the contract to deliver a Catenary Buoy Mooring (CBM) system for the ACME Green Ammonia export terminal in Duqm, Oman, the project called for Resinex support, as it would be the first facility of its kind in the world, designed to export refrigerated green ammonia produced entirely from solar power.

For a terminal of this significance, the mooring infrastructure had to match the ambition of the project. BlueWater turned to Resinex for the supply of four PEM 58 x 2000 catamaran buoys, each engineered to handle mooring loads of up to 200 tons SWL, and a load test at MBL (Minimum Breaking Load) of 300 tons.

The catamaran buoy is one of Resinex's most technically refined products: unlike a conventional mooring buoy, which tends to tilt under lateral load, Resinex's own catamaran design incorporates a lever-based balancing system that keeps the buoy horizontal even under the most severe mooring conditions.

The result is a platform that is more stable, more predictable in its behavior, and better suited to the harsh conditions of an offshore mooring infrastructure.



Each buoy is built from 16+2 modular floats filled with polyurethane foam, a construction that ensures permanent buoyancy and eliminates the need for maintenance over the buoy's service life.

The buoys are also equipped with a double quick-release hook of 100 tons each, a radar reflector, safety guardrails, access ladders, and fittings for a marine lantern and foghorn.

In January 2026, two Resinex technicians travelled to Ras al Khaimah to oversee the assembly of the four catamaran buoys, ensuring that each unit met the required specifications before delivering on site.

The Duqm terminal is scheduled to begin operations in 2027, supplying green ammonia to dedicated tankers, representing a significant step in the transition toward clean energy shipping infrastructure.

Resinex's involvement in this project is a reminder that mooring, pipe deployment, signalling and data collection may not feature in the energy transition narrative, but without reliable, well-engineered buoy systems, the logistics of moving clean energy from source to ship would not be possible.



Saipem Neptun Deep Project

Four Supplies, One Turnkey Partner

Located in the Romanian sector of the Black Sea, Neptun Deep is an offshore gas field strategic for natural gas supply across Europe. The project combines two reservoirs: the Domino Field, at 1,000 m water depth, and the South Pelican Field, at 125 m

water depth. Both are connected to the Neptun Alpha platform through subsea production systems, umbilicals and flowlines; from there, a 160 km pipeline carries the gas to the Romanian coast, at the Tuzla Gas Metering Plant.

Within this complex structure, Resinex's role goes beyond supplying a product, extending into multiple stages of construction and installation. During pipe deployment, 100 tie-in floats, 2,800 mm in length, with a net buoyancy of 4,400 kg each, are placed along the pipeline. Mooring support during offshore operations is provided by two Pennant Buoys PEM 18x2100 mm DTC, each with 4,000 kg net buoyancy.

During platform pull-in, 96 RS4 and 1 RS5 spherical buoys support the fibre optic cable's positioning and tension. A further supply of cylindrical and spherical buoys, rated for depths up to 1,200 m and buoyancies

from 150 to 1,360 kg, supports connector installation. With 260 units supplied across four product families, Resinex's adaptability to diverse technical requirements confirms its role as a true turnkey partner in a project of this scale.





High Buoyancy For Wind Farms

EolMed Project in Southern France

A wind farm capable of producing 110 million kWh per year: located 18 km off the coast of Gruissan, in southern France, the **EolMed** project includes three floating turbines of 10 MW each, enough to provide clean energy to 50,000 people. Each semi-floating structure is massive: 45 m x 45 m x 17 m, with turbines reaching an impressive height of 220 m above sea level.

This structure is anchored to the seabed at a depth of 60 meters, using MA55 anchors weighing 35 tons each, with a holding capacity of 1,210 tons, designed and installed by **Mooreast Singapore** in collaboration with **Bourbon Offshore**, strategic partners of **Resinex** in the design and development of this complex mooring system.

In this context, **Resinex's** expertise makes the difference: our buoys are not simple components, but solutions designed to reduce tension on the mooring lines, which are about 400 meters long, ensuring stability and safety even in challenging marine conditions.

The Resinex buoys were specifically developed for the project, with structural features tailored to guarantee maximum stability of the mooring system.

Each element, measuring 2,500 mm x 2,500 mm and with a variable height from 1,000 mm to 2,100 mm, was designed with differentiated buoyancy values,



starting from 3,600 kg up to 8,300 kg of net buoyancy. Thanks to high-strength materials and a design optimized for the offshore environment, **Resinex** buoys ensure constant buoyancy, long-term durability, and a significant reduction in maintenance costs.

Our approach includes a wide margin of customization, essential for a project designed to last at least 25 years and guarantees reliability in every operational phase.

Protection and long-term resistance are key aspects in the design of **Resinex** buoys: each of the 49 installed buoys features 8 zinc anodes, essential to prevent corrosion caused by galvanic currents. In addition, wear-resistant bushings have been integrated into the eyes, crucial for absorbing inevitable impacts in such a demanding marine environment.

The **EolMed** project is not just a technological milestone, but a concrete example of how innovation and collaboration can drive energy transition. Thanks to **Resinex** buoys, **Mooreast** anchors, and the support of **Bourbon Offshore**, this infrastructure is ready to withstand the challenges of the sea for at least twenty-five years, providing clean energy to tens of thousands of people.

Resinex confirms its role as a strategic partner for renewable energy, investing in solutions that combine reliability, safety, and sustainability.





New Snam FSRU in Ravenna

Ensuring Safety and Operations Offshore

In an increasingly complex energy landscape, the regasification of liquefied natural gas (LNG) represents a strategic infrastructure for the diversification of energy sources in Italy.

The Ravenna FSRU terminal, with a regasification capacity of 5 billion cubic meters of gas per year and a storage capacity of 170,000 cubic meters of liquefied gas, is a project of great significance both for the volumes it handles and for the strategic location of the facility, situated 8.5 km off the Ravenna coast.

The complexity of an infrastructure of this kind requires that all operational components of the station to be secured: from the BW Singapore regasification vessel to the support units and the LNG tankers responsible for transporting the gas.

Resinex, commissioned by **Micoperi** on behalf of **Snam**, contributed to the project by supplying marine marking systems and a complete mooring system, designed to support the operations of the service units and to delimit the terminal's operational areas.

The Resinex supply includes nine elastic beacons, installed to delimit the operational areas of the offshore terminal.

The configuration includes three special-purpose elastic beacons, with a yellow St. Andrew's cross (X) topmark, installed at a water depth of 14 meters and with a focal plane of 6 meters, intended to delimit the safety area where LNG tankers are intercepted by tugboats.

In addition to these, the supply includes also six lateral elastic beacons, three green and three red, installed at depths of 14, 16 and 18 meters, each with a 6-metre focal plane, marking the entrance to the terminal's operational areas.

The lanterns installed are the **Resinex-Co.Se.Ma** CL 301 model, featuring GPS-synchronized flashing and visibility of up to 6 nautical miles, a solution that ensures coordinated and easily recognizable signaling even in conditions of reduced visibility.

Configured in accordance with IALA recommendations, this marking system ensures clear identification of operational perimeters, enhancing navigational safety and the management of maneuvers within the terminal.

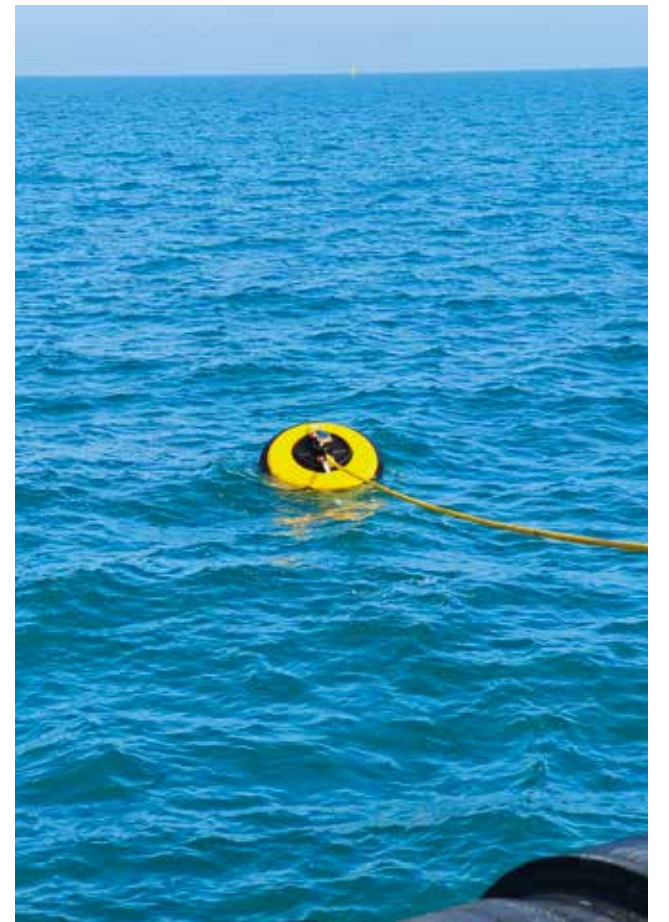
Another important element of the supply is the mooring system dedicated to tugboats: four buoys allow support units to remain stably positioned in the vicinity of the BW Singapore vessel, avoiding the need for temporary anchorage on the seabed.

The mooring buoys supplied are model E15x850, with a diameter of 1,450 mm and a height of 850 mm, a SWL of 17 tonnes and a net buoyancy (NB) of 1,050 kg — specifications that allow the safe mooring of tugboats even in demanding operating conditions.

Each buoy is equipped with a lantern with a range of 3 nautical miles, ensuring high visibility even in difficult weather conditions.

The mooring system is completed by four spherical buoys in linear polyethylene with a diameter of 500 mm and a net buoyancy of 55 kg, which serve as pick-up points for the mooring chain connected to the main buoy.

Within the Ravenna FSRU project, tugboats play a fundamental role: they assist the regasification vessel during positioning operations and, most importantly, intercept incoming LNG tankers, controlling their speed and trajectory during approach



and stabilising them during ship-to-ship berthing operations.

The Ravenna FSRU project confirms Resinex's ability to operate in complex, high-responsibility offshore environments, providing tailored integrated mooring and marking solutions for strategic energy infrastructure.





Lights on Venice, again

Fourteen long-lasting aids to navigation installed At Lido, Malamocco and Chioggia



Elastic Beacon C1, FP 700



Fixed Beacon C18, FP 600



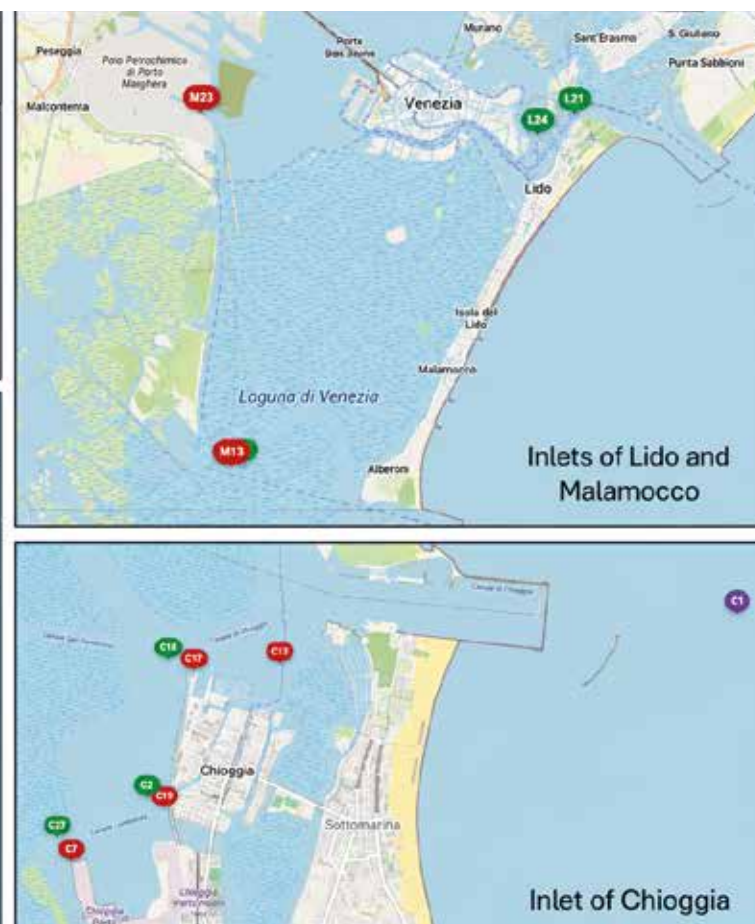
Light Buoy C19, PEM 13



Fixed Beacon M13, FP 600



Building on years of work on the MOSE Project in the Venice Lagoon, in 2023 Resinex was contracted to supply fourteen aids to navigation as part of a project issued by the Northern Adriatic Sea Port System Authority. Installation was completed between 2024 and 2025 under the supervision of our technicians. The fourteen aids — lateral marks, buoys, fixed beacons and a tower — are built in stainless steel and vary in construction type according to seabed depth and site requirements. At Chioggia the C1 safe water mark stands out: positioned offshore with a 6 NM range, it marks hazard-free waters in all directions. At Malamocco, four fixed beacons feature IALA-compliant radar topmarks and self-powered GPS lanterns. At Lido, a green buoy and a green fixed beacon mark the Canal of San Nicolò. Quality and durability define our products: built for demanding marine environments, with a track record spanning international projects from the Suez Canal to the Venice Lagoon.



Light Buoy L21



Fixed Beacon M14, FP 600



Fixed Beacon L24, FP 300



The Egyptian Connection

Navigational Aids across Egyptian Ports and Marinas

30 years and Counting

For 30 years, Resinex has been supplying navigational aids for infrastructure projects across Egypt, in a long-standing collaboration with Maritime Group, an Egyptian partner with three decades of shared project experience. The most recent chapter of this partnership spans the past three years, with a series of installations across the country's commercial ports, naval infrastructure, and coastal leisure facilities.

The most recent installation took place in 2025 at Abu Tig Marina in El Gouna, on the Red Sea coast, where 10 buoys were deployed to support navigation within one of the region's most prominent leisure marina facilities.

In 2024, two separate projects were completed: the first at Abu Qir Port, where 16 buoys were installed in collaboration with DEME Group on behalf of the Egyptian Naval Forces; the second at Damietta Port, where 14 elastic beacons with a 7-metre focal plane were supplied for deployment at a working depth of 18 metres.

This series of installations opened in 2023 with an 11-buoy deployment at Sokhna Port, carried out on behalf of the Red Sea Ports Authority.

Taken together, these projects speak to a consistent demand for reliable, low-maintenance navigational aids across Egypt's commercial ports, naval infrastructure, and coastal leisure facilities — sustained by a partnership between Resinex and Maritime Group now spanning three decades.



Port of Salerno: New alternative Elastic Beacons

The Risk of not choosing Resinex the First Time

The port of Salerno is one of southern Italy's most strategically important commercial hubs along the Tyrrhenian coast. As part of an upgrade of the Molo di Ponente, Resinex was awarded by R.C.M. Costruzioni the supply of three elastic beacons for navigation aid and one instrumental elastic beacon for the port's western pier.

Navigation aid beacons

The three navigational aid elastic beacons are Resinex FP 7000 PEM 21 x 2800 units, designed for operating depths between 14.5 and 18.5 metres. Each features a truncated conical float filled with polyurethane foam for permanent buoyancy in all conditions.

The floats have an external diameter of 2,100 mm and height of 2,800 mm, with the focal plane set 7 metres above the waterline. Submerged parts receive anti-fouling treatment, with eight zinc anodes providing cathodic protection.

Each beacon carries an IALA-compliant radarable topmark with radar reflector, and a self-powered marine lantern with a 4–5 NM nominal range and GPS synchronisation, plus climbing steps, a telescopic tower and access ladder.



Instrumental beacon

The fourth unit, an instrumental elastic beacon (PEM 21 x 2800 FP 7500), is deployed at 14.9 metres operating depth with a focal plane 7.5 metres above the waterline.

Sharing the same float structure as the navigation aid beacons, it differs both structurally and functionally: it features a 2 x 2 metre platform with eight brackets for 100 W solar panels, a dedicated bracket for an ADCP sensor, and a stainless-steel enclosure and bracket for an AWAC unit.

While the navigation aid beacons fulfil a demanding marking role in a continuously exposed marine environment, the instrumental beacon adds further complexity, also serving as a stable, long-term platform for acoustic monitoring equipment. The supply replaced equipment from a previous provider, reflecting the client's confidence in Resinex's product quality and technical support, confirming Resinex's capability to deliver tailored solutions for complex port infrastructure, combining standard navigation aid requirements with specialised instrumental configurations.



Brand New Products



Monofloat Ø2600

Self-righting lateral buoy
Single module Buoy
Ø2600 mm



Squared Tie-in Floats Type 1400x470x2500

NB 2,500 kg · WD 50 m
1400 × 470 × 2500 mm



Floats for Lidar Buoy

NB 5640 kg
Ø 3400mm
Instrumental buoy with LiDAR



Elliptical ADCP Buoy

1300 × 1946 mm · NB 210 kg
Rated depth: 1,500 m



Donut Fender

3000x2900 mm
For Ø 1016 Pile
Filled with Polyurethane Foam



Spherical ADCP Buoy

Ø 1350 mm
Rated Depth 3,500 m
Deep-Ocean ADCP monitoring



PEM 25

2500 x 2500 mm
From 1000 to 2100 mm height
NB from 3600 to 8300 kg



Telemark Buoys

1800 x 1800 x 2900 mm
NB 6000 kg
Aluminum Mast on top



Special Float Collars

Ext Ø 406 mm; Int Ø 91 mm
Filled with Syntactic Foam
Rated 3000 m WD

Resinex-CoSeMa New Marine Lantern CL-201

Resinex-CoSeMa adds the CL 201, a compact solar lantern for demanding environments. Lightweight and IALA-compliant, it joins the CL 303 and CL 401, suited to small buoys, elastic beacons and shallow-water markers. At 215x215x204 mm and 1.9 kg, it's the lightest in the range. The enamelled aluminium body and 4-hole flange ensure durability and versatile mounting. A single LED gives 4 nautical miles' range, 360° output and 100,000-hour life, in white, red, green or yellow. IP68-rated, with remote switching, optional GPS sync, and IALA-standard flash patterns and colours.



NEW CL-201

Resinex-CoSeMa New Marine Lantern CL-303: the evolution of CL-301

The CL-303 marks the evolution of the CL-301 within the Resinex-CoSeMa family, combining a lighter, more compact design with the range's proven reliability. The body material changes from aluminium to polycarbonate, cutting weight by 55% (10 to 4.5 kg) and height by 38% (560 to 348 mm), while retaining the CL-301's carrying handle. LEDs are reduced from 9 to 4 without penalising the 7 NM nominal range, and vertical divergence now exceeds 10°, improving visibility across wider angles. Flash patterns are remotely programmable, with full IALA compliance, while IP68 protection and -30°C to +50°C operation remain unchanged.



NEW CL-303